(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 0 566 769 B1

(12) EUROPEAN PATENT SPECIFICATION

(45) Date of publication and mention of the grant of the patent:
04.02.1998 Bulletin 1998/06

(51) Int. Cl.[6]: **A61M 25/06**

(21) Application number: **92107021.5**

(22) Date of filing: **24.04.1992**

(54) Retractable intravenous needle assembly

Zurückziehbare intravenöse Nadelvorrichtung

Dispositif d'aiguille intraveineuse retractable

(84) Designated Contracting States:
BE CH DE ES FR GB IT LI NL SE

(43) Date of publication of application:
27.10.1993 Bulletin 1993/43

(73) Proprietor:
INTERNATIONAL SAFETYJECT INDUSTRIES, INC.
Vancouver, British Columbia V6C 2V6 (CA)

(72) Inventor: **Bonaldo, Jean M.**
Upland, California 91786 (US)

(74) Representative:
Pellmann, Hans-Bernd, Dipl.-Ing.
Patentanwaltsbüro
Tiedtke-Bühling-Kinne & Partner
Bavariaring 4
80336 München (DE)

(56) References cited:

EP-A- 0 304 107	DE-U- 8 802 080
US-A- 4 388 074	US-A- 4 655 751
US-A- 4 758 231	US-A- 4 846 811
US-A- 4 878 902	US-A- 4 909 793
US-A- 4 935 012	US-A- 5 108 376

EP 0 566 769 B1

Printed by Xerox (UK) Business Services
2.15.8/3.4

Description

BACKGROUND OF THE INVENTION

The present invention relates to an intravenous needle assembly in which the needle is retractable into the assembly.

Intravenous needle assemblies have long been utilized in the medical practice and are designed for insertion into blood vessels and similar passageways or cavities in the body, to permit infusing or withdrawing fluids. An intravenous needle of this type is described, in one particular specialized embodiment thereof, in U.S. Patent No. 3,064,648, issued November 20, 1962 to A.F. Bujan. In this device, a pair of flexible wings are utilized to fix the intravenous needle to the scalp of a patient. The needle is fixed to the flexible wings, and covered by a sheath prior to use. After utilization, the needle point is exposed and so presents a hazard during subsequent handling and disposal.

U.S. Patent No.4,395,011 issued June 19, 1990 to J. Martin Hogan describes a sheath which may be utilized in conjunction with an intravenous needle to enclose the needle after usage so as to protect persons subsequently handling the needle against accidental sticks. The needle has a winged or butterfly housing and a sharpened cannula fixed to the housing so as to always extend therebeyond. The protective sheath encloses the wings and the cannula after use and, consequently, is comparatively bulky, as well as being relatively complex in its utilization, requiring folding and the like in order to enclose the needle. Thus, the protective sheath of U.S. Patent No. 4,935,011 is essentially an auxiliary appliance for use with a conventional butterfly cannula, for enclosing the cannula and the housing upon the cannula is mounted after use to avoid accident sticks.

An intravenous needle assembly as defined in the preamble of claim 1 is known from DE-U-8 802 080.

BRIEF DESCRIPTION OF THE INVENTION

According to the present invention which is defined in claim 1, a retractable intravenous needle assembly has a pointed cannula mounted on a hub which is slidably disposed within a non-circular cross-section passageway extending through a winged housing so that the cannula point extends beyond the housing and is locked against retraction thereinto by a locking lug formed on the hub engaging a depending stop boss formed in the central passageway at one end thereof. After use, the wings of the housing are folded together so as to deform the passageway cross-section at the stop boss to permit the locking lug to clear the stop, whereby the cannula may be retracted manually into the central passageway, where the locking lug engages a locking recess formed in the housing passageway so as to lock the cannula point within the passageway, thus avoiding accidental sticks during disposal of the used intravenous needle assembly.

BRIEF DESCRIPTION OF THE DRAWING

The invention may be more readily understood by referring to the accompanying drawings, in which:

Figure 1 is an isometric view of a retractable intravenous needle assembly according to the current invention;
Figure 2 is a plan view of the retractable intravenous needle assembly of Figure 1;
Figure 3 is a right side elevational view, in section, taken along lines 3-3 of Figure 2;
Figure 4 is a plan view of an intravenous needle assembly hub for use in the present invention;
Figure 5 is a right side elevation, in section, taken along lines 5-5 of Figure 4;
Figure 6 is a front elevation, in section, taken along lines 6-6 of Figure 4;
Figure 7 is a front elevation, in section, taken along lines 7-7 of Figure 4;
Figure 8 is a plan view of a housing for use in the present invention in conjunction with the retractable intravenous needle hub of Figure 4;
Figure 9 is a right side elevation, in section, taken along lines 9-9 of Figure 8;
Figure 10 is a front elevational view of the housing of Figure 8;
Figure 11 is a front elevational view of the housing of Figure 8 in its disposition which facilitates needle retraction;
Figure 12 is a view similar to Figure 3, of the retractable intravenous needle assembly of the present invention in its retracted disposition.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to Figure 1, there is shown an isometric view of a retractable intravenous needle assembly 10 according to the present invention. The needle assembly 10 has a cannula 12 extending outwardly from a hub 14 mounted in a housing 16. Extending laterally from the housing 16 are a pair of wings 18. At the rear of the housing 16 there is an inclined ramp 20 extending upwardly and outwardly from the hub 14 for use in retracting the cannula 12 into the housing 14, as will be explained hereinafter. The cannula 12 has a sharpened point 24. To the rear of the ramp 20, flexible tubing 22 encloses the hub 14 and thus the opposite open end 25 of the cannula 12. Referring now to Figure 2, the needle assembly 10 is shown with a protective sheath 26 enclosing the sharpened point 24 of the cannula 12 to protect the sharpened point prior to usage. The sheath 26 is of conventional construction and is removed at the time the cannula is to be inserted into

the patient's vein.

Figure 3 is a right side elevation, in section, taken along lines 3-3 of Figure 2 and illustrating the internal construction of the retractable intravenous needle assembly 10. As is shown in Figure 3, the cannula 12 is a single ended cannula, that is, the sharpened point 24 is located at one end thereof, and at its opposite end 25, the cannula 12 terminates in a hollow blunt end suitable for permitting fluid to pass therethrough either into the cannula 12 or from the cannula 12 into the tubing 22. The hub 14 is seen to be elongated so as to extend out each of a first end 28 and a second end 30 of the housing.

The housing 16 has a longitudinal central passageway 32 extending therethrough, within which, adjacent the first end 28, a stop 34 in the form of a depending boss is formed. Adjacent to housing second end 30; within the passageway 32, is a locking recess 36 bounded on each side by one pair of oppositely disposed, longitudinally aligned, spaced apart ramps 38, 40, the function of which will be described hereinafter. A locking lug 42 is formed on the hub 14 at the end thereof which is adjacent the sharpened point 24. As shown in Figure 3, the locking lug 42 abuts and is thereby stopped by the boss from entering further into the central passageway 32. Similarly, the retraction ramp 20 will be stopped by the second end 30 of the housing 16 to prevent the hub 14 from passing substantially further through the first end 28 of the housing 16 than is shown in Figure 3. The flexible tubing 22 is connected to the hub 14 so as to enclose the open end 25 of the cannula 12 prior to use in order to permit the transfer of fluid to or from the intravenous needle assembly 10, as appropriate.

The configuration of the hub 14 is best shown in Figures 4 through 7, in which Figure 4 is a plan view of the hub 14, Figure 5 is a right side elevation, in section, taken along lines 5-5 of Figure 4, and Figures 6 and 7 are front elevational views taken along section lines 6-6 and 7-7, respectively, of Figure 4. The hub 14 has a circular cross-sectional portion 14A which is located between the locking lug 42 and the hub end adjacent thereto and a part-circular cross-sectional portion 14B which is located between the locking lug 42 and the ramp 20. The circular cross-section portion 14A is best seen in Figure 6, and the particular cross-sectional portion 14B is best seen in Figure 7.

The housing 16 is shown in Figures 8,9, and 10, Figure 9 being a right side elevational view, in section, taken along line 9-9 of Figure 8, which is a plan view of the housing 16. In Figure 9, the ramps 38 and insertion ramp 40 are seen to be separated by the locking recess 36. As will be apparent from the description hereinafter, the locking recess 36, as shown in Figure 8 and 9, extends through the body of the housing 16 so as to constitute an aperture. However, it is not necessary that the locking recess 36 extend through the body so as to constitute an aperture, so long as the recess 36 is of sufficient depth with respect to the ramps 38, 40 so as to lock the locking lug 42 therebetween, as shown in Figure 12.

As is best seen in Figure 10, a pair of longitudinal grooves 44 are formed in the wings 18 at their juncture with the housing 16. The grooves 44 facilitate the upward bending of the wings 18 as is illustrated in Figure 11. Also seen in Figure 10, which is a front elevational view of the housing 16, is the stop 34, in the form of a boss, which serves to normally stop the locking lug 42 against entering into the central passageway 32 so as to hold the cannula 12 in the extended position shown in Figure 1. The boss is shown in section in Figure 9.

In the presently preferred embodiment shown in Figure 10, the central passageway 32 is partially circular in cross-section, and is complementary in cross-section to the parti-circular cross-sectional portion 14B of the hub 14, illustrated in Figure 7. By using the complementary parti-circular cross-sections for the hub portion 14B and the housing passageway 32, rotation of the hub 14 within the central passageway 32 is inhibited. The ramps 38, 40 have flats 46, 48, respectively, which slidably engage a flat upper surface 50 formed on the parti-circular hub portion 14B, see Fig.5, so as to preclude any rotation of the hub 14 in the housing 16 in conjunction with the parti-circular cross-sectional configuration.

In order to retract the sharpened point 24 of the cannula 12 within the housing 16, the wings 18 are folded upwardly together as is shown in Figure 11. This movement of the wings 18 causes a deformation of the cross-sectional configuration of the first end 28 of the housing 16, such that the stop 34 rises with respect to the flats 46, 48 formed on the ramps 38, 40, as is shown in Figure 11. In this disposition of the housing 16, the locking lug 42 may pass under the stop 34 in response to urging by a finger of a user applied to the retraction ramp 20, so as to move the locking lug 42 toward the ramp 38. Once the locking lug 42 has cleared the stop 34, the wings may be unfolded, if desired, to the position shown in Figure 10. Continued digital pressure on the retraction ramp 20 causes the locking lug 42 to engage the ramp 38, deforming the cross-sectional configuration of the housing 16 adjacent thereto so as to permit the locking lug 42 to enter the locking recess 36, as is shown in Figure 12. In this disposition, the locking lug 42 is locked between the two ramps 38, 40 with the sharpened point 24 of the cannula 12 retracted within the housing first end 28. If not already detached, the plastic tubing 22 can then be detached from the hub 14, and the needle assembly 10 disposed of without danger of accidental sticks by the sharpened point 24 during disposal handling.

The various components of the retractable intravenous needle assembly 10 are made of conventional medical grade plastic materials, with the exception of the cannula, which is made of conventional stainless

steel. For example, the cannula can be made of SS 304 grade of stainless steel, the hub made of grade PD-626 PRO-FAX polypropylene distributed by Himont USA, Inc. of Wilmington, Delaware, and the housing made of 2363 Series polyurethane elastomer distributed by Alpha Chemical & Plastics Corporation of Newark, New Jersey. It is to be understood that these examples of materials from which the components of the retractable intravenous needle assembly of the present invention may be constructed are given by way of example, and are not to be considered as limitation upon the present invention as claimed herein.

Similarly, while the figures show the use of a particular cross-sectional configuration with a flat upper surface on the hub for the complementary hub and passage configurations as the presently preferred embodiment, other configurations which inhibit or prevent hub rotation in the passage can be used. For example, cross-sectional polygonal shapes, such as triangles, rectangles, hexagons, etc. can be utilized, although such configurations may be more difficult to manufacture. Other configurations, such as a keyed slot, oval and elliptical cross-sections can also be used to prevent rotation without departing from the scope of the present invention as claimed hereinafter, except as such alternate embodiments may be expressly excluded by the limitations contained in certain of the following claims.

Claims

1. A retractable intravenous needle assembly (10) comprising:

   a housing (16) having a central passageway (32) extending longitudinally therethrough, said passageway (32) having a first end (28) and a second end (30);
   a stop (34) formed in the passageway (32) in proximity to the first end (28) thereof;
   an elongated hub (14);
   a cannula (12) having a sharpened point (24) at one end, said cannula (12) being mounted in said hub (14) so that at least the pointed end of said cannula (12) is disposed beyond the hub (14), said hub (14) having a locking lug (42) formed thereon in proximity to said pointed end, said hub (14) being slidably positioned in said passageway (32) so that said stop (34) is normally disposed between said locking lug (42) and a locking means (36, 38, 40), and when so disposed, is normally operable to prevent said lug (42) from passing by the stop (34) into the passageway (32);
   release means fixed adjacent to said stop (34) and operable when actuated to deform the cross-sectional configuration of said passageway (32) at said stop (34) so as to permit the locking lug (42) to pass by the stop (34) when urged toward the locking means (36, 38, 40), said locking means (36, 38, 40) being operable when in engagement with said locking lug (42) to lock said hub (14) to said housing (16) in a position such that the cannula (12) pointed end is contained within the housing passageway (32),
   characterized in that
   said release means includes a pair of lateral wings (18) fixed to the housing (16) and oppositely disposed on the exterior of said housing (16) and operable when folded together.

2. A retractable intravenous needle assembly (10) according to claim 1, characterized by manual operating means longitudinally aligned with said hub (14) and extending outwardly therefrom exteriorly of the housing second end (30) for manually sliding said hub (14) longitudinally along said passageway (32) to move said locking means (36, 38, 40) upon actuation of said release means.

3. A retractable intravenous needle assembly (10) according to claim 1 or 2, characterized by means for preventing the relative rotation of the hub (14) with respect to the housing (16).

4. A retractable intravenous needle assembly (10) according to claim 3, characterized by said rotation preventing means including complementary non-circular configurations of at least a portion of the passageway (32) and the hub (14) which engage one another.

5. A retractable intravenous needle assembly (10) according to claim 4, characterized in that, the cross-sectional configuration is partially circular.

6. A retractable intravenous needle assembly (10) according to any one of the preceding claims, characterized in that, the locking means (36, 38, 40) is comprised by a recess (36) formed in the passageway (32).

7. A retractable intravenous needle assembly (10) according to claim 6, characterized in that, the locking means recess (36) is comprised by a pair of opposed ramps (38, 40) logitudinally disposed in said passageway (32) with the recess (36) formed therebetween.

8. A retractable intravenous needle assembly (10) according to claim 2, characterized in that, said manual operating means is comprised by an inclined ramp (20) formed on said hub (24) so as to be normally disposed outside of the housing passageway (32) in proximity to said second end (30)

thereof and operable in reponse to digital urging by a user away from said second end (30) to move said hub (14) so as to move said locking lug (42) from beyond said stop (34) to said locking means (36, 38, 40) upon actuation of said release means.

9. A retractable intravenous needle assembly (10) according to claim 1 to 8, characterized in that, said stop (34) is a boss.

10. A retractable intravenous needle assembly (10) according to any one of the preceding claims, characterized in that, when the wings (18) are folded said passageway (32) cross-sectional configuration is deformed.

Patentansprüche

1. Zurückziehbare intravenöse Nadelvorrichtung (10) mit:

einem Gehäuse (16) mit einem zentralen Durchgang (32), der sich in Längsrichtung hindurch erstreckt, wobei der Durchgang (32) ein erstes Ende (28) und ein zweites Ende (30) hat;
einem Stopper (34), der im Durchgang (32) nahe seines ersten Endes (28) gebildet ist;
einer länglichen Nabe (14);
einer Kanüle (12) mit einer geschärften Spitze (24) auf einer Seite, wobei die Kanüle (12) in der Nabe (14) angeordnet ist, so daß zumindest das spitze Ende der Kanüle (12) außerhalb der Nabe angeordnet ist, wobei die Nabe (14) nahe ihrem spitzen Ende eine Sperrnase (42) hat und gleitend in dem Durchgang (32) aufgenommen ist, so daß der Stopper (34) normalerweise zwischen der Sperrnase (42) und einer Sperreinrichtung (36, 38, 40) angeordnet ist und bei dieser Gestalt normalerweise bewirkt, daß die Nase (42)) durch den Stopper (34) am Passieren des Durchgangs (32) gehindert wird;
Freigabeeinrichtungen, die nahe dem Stopper (34) befestigt sind und bei Betätigung die Querschnittsform des Durchgangs (32) beim Stopper (34) verformen, damit die Sperrnase (42) den Stopper (34) passieren kann, wenn sie in Richtung auf die Sperreinrichtung (36, 38, 40) gedrückt wird, wobei die Sperreinrichtung (36, 38, 40) wirksam wird, wenn sie sich in Eingriff mit der Sperrnase (42) befindet, um die Nabe (14) am Gehäuse (16) in einer Position zu fixieren, bei der das spitze Ende der Kanüle (12) innerhalb des Gehäusedurchgangs (32) aufgenommen ist,
dadurch gekennzeichnet, daß
die Freigabeeinrichtung ein Paar seitlicher Flügel (18) hat, die an dem Gehäuse befestigt und außen am Gehäuse (16) einander gegenüberliegend angeordnet und funktionsfähig sind, wenn sie zusammengefaltet werden.

2. Zurückziehbare intravenöse Nadelvorrichtung (10) nach Anspruch 1, **gekennzeichnet durch** eine manuelle Betätigungseinrichtung, die in Längsrichtung der Nabe (14) ausgerichtet ist und sich außerhalb des zweiten Endes (30) des Gehäuses aus der Nabe nach außen erstreckt, um die Nabe (14) manuell entlang des Durchgangs (32) zu verschieben und die Sperreinrichtung (36, 38, 40) unter Aktivierung der Freigabeeinrichtung zu bewegen.

3. Zurückziehbare intravenöse Nadelvorrichtung (10) nach Anspruch 1 oder 2, **gekennzeichnet durch** Einrichtungen zur Verhinderung der Relativdrehung der Nabe (14) gegenüber dem Gehäuse (16).

4. Zurückziehbare intravenöse Nadelvorrichtung (10) nach Anspruch 3, **dadurch gekennzeichnet, daß** die Einrichtung zur Verhinderung der Drehung mit komplementären unrunden Gestaltungen an zumindest einem Abschnitt des Durchgangs (32) und der Nabe (14) aufweist, die miteinander in Eingriff sind.

5. Zurückziehbare intravenöse Nadelvorrichtung (10) nach Anspruch 4, **dadurch gekennzeichnet, daß** die Querschnittsgestalt teilkreisförmig ist.

6. Zurückziehbare intravenöse Nadelvorrichtung (10) nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, daß** die Sperreinrichtung (36, 38, 40) mit einer in dem Durchgang (32) ausgebildeten Aussparung (36) versehen ist.

7. Zurückziehbare intravenöse Nadelvorrichtung (10) nach Anspruch 6, **dadurch gekennzeichnet, daß** die Aussparung der Sperreinrichtung (36) mit einem Paar einander gegenüberliegender Rampen (38, 40) versehen ist, die in dem Durchgang (32) in Längsrichtung mit der dazwischen liegenden Aussparung angeordnet sind.

8. Zurückziehbare intravenöse Nadelvorrichtung (10) nach Anspruch 2, **dadurch gekennzeichnet, daß** die manuelle Betätigungseinrichtung eine schräge Rampe (20) hat, die auf der Nabe ausgeformt ist und sich normalerweise außerhalb des Durchgangs (32) des Gehäuses, in der Nähe seines zweiten Endes befindet und auf einen von dem zweiten Ende (30) weg gerichteten Fingerdruck durch einen Benutzer dafür sorgt, daß die Nabe (14) bewegt und dadurch die Sperrnase (42) bei Betätigung der Freigabeeinrichtung von außerhalb des Stoppers (34) hin zu der Sperreinrichtung (36,

38, 40) bewegt wird.

9. Zurückziehbare intravenöse Nadelvorrichtung (10) nach den Ansprüchen 1 bis 8, **dadurch gekennzeichnet, daß** der Stopper (34) ein Vorsprung ist.

10. Zurückziehbare intravenöse Nadelvorrichtung (10) nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, daß** die Querschnittsgestalt des Durchgangs (32) beim Falten der Flügel (18) verformt wird.

Revendications

1. Agencement d'aiguille intraveineuse (10) rétractable comprenant :

   - un boîtier (16) ayant un passage central (32) s'étendant longitudinalement à l'intérieur, ledit passage (32) ayant une première extrémité (28) et une deuxième extrémité (30);
   - une butée (34) formée dans le passage (32) à proximité de sa première extrémité (28);
   - un moyeu (14) allongé;
   - une canule (12) ayant une pointe acérée (24) à une extrémité, ladite canule (12) étant montée dans ledit moyeu (14) de manière qu'au moins l'extrémité pointue de ladite canule (12) soit disposée au-delà du moyeu (14), ledit moyeu (14) ayant une oreille de blocage (42) formée sur ce dernier à proximité de ladite extrémité pointue, ledit moyeu (14) étant placé à coulissement dans ledit passage (32), de manière que ladite butée (34) soit disposée normalement entre ladite oreille de blocage (42) et un moyen de blocage (36, 38, 40) et, lorsqu'elle est ainsi disposée, puisse normalement fonctionner de façon à empêcher ladite oreille (42) de dépasser la butée (34) afin d'entrer dans le passage (32);
   - un moyen de libération, fixé de manière adjacente à ladite butée (34) et servant, lorsqu'il est actionné, à déformer la configuration de section transversale dudit passage (32) au niveau de ladite butée (34), de manière à permettre à l'oreille de blocage (42) de dépasser la butée (34) lorsqu'elle est poussée vers le moyen de blocage (36, 38, 40), ledit moyen de blocage (36, 38, 40) servant, lorsqu'il est au contact de ladite oreille de blocage (42), à bloquer ledit moyeu (14) par rapport audit boîtier (16) dans une position telle que l'extrémité pointue de la canule (12) est contenue dans le passage de boîtier (32),
     caractérisé en ce que ledit moyen de libération comprend un couple d'ailettes latérales (18) fixées au boîtier (16) et disposées à l'opposé à l'extérieur dudit boîtier (16) et
   - onctionnant lorsqu'elles sont pliées ensemble.

2. Agencement d'aiguille intraveineuse (10) rétractable selon la revendication 1, caractérisé par un moyen d'actionnement manuel aligné longitudinalement avec ledit moyeu (14) et s'étendant vers l'extérieur de ce dernier, vers l'extérieur de la deuxième extrémité (30) du boîtier, afin de faire coulisser manuellement ledit moyeu (14) longitudinalement sur ledit passage (32), afin de déplacer ledit moyen de blocage (36, 38, 40) lors de l'actionnement dudit moyen de libération.

3. Agencement d'aiguille intraveineuse (10) rétractable selon la revendication 1 ou 2, caractérisé par un moyen servant à empêcher la rotation relative du moyeu (14) par rapport au boîtier (16).

4. Agencement d'aiguille intraveineuse (10) rétractable selon la revendication 3, caractérisé par ledit moyen d'empêchement de rotation comprenant des configurations non-circulaires complémentaires d'au moins une partie du passage (32) et du moyeu (14), qui s'engagent l'une avec l'autre.

5. Agencement d'aiguille intraveineuse (10) rétractable selon la revendication 4, caractérisé en ce que la configuration de sections transversale est partiellement circulaire.

6. Agencement d'aiguille intraveineuse (10) rétractable selon l'une quelconque des revendications précédentes, caractérisé en ce que le moyen de blocage (36, 38, 40) est constitué d'une cavité (36) formée dans le passage (32).

7. Agencement d'aiguille intraveineuse (10) rétractable selon la revendication 6, caractérisé en ce que la cavité de moyen de blocage (36) est constituée d'un couple de rampes (38, 40) opposées disposées longitudinalement dans ledit passage (32), la cavité (36) étant formée entre elles.

8. Agencement d'aiguille intraveineuse (10) rétractable selon la revendication 2, caractérisé en ce que ledit moyen d'actionnement manuel est constitué d'une rampe inclinée (20) formée sur ledit moyeu (24), de manière à être normalement disposé à l'extérieur du passage de boîtier (32), à proximité de sa dite deuxième extrémité (30) et fonctionnant en réponse à une poussée par les doigts d'un utilisateur afin d'être éloigné de ladite deuxième extrémité (30), pour déplacer ledit moyeu (14) de manière à déplacer ladite oreille de blocage (42) au delà de ladite butée (34) vers ledit moyen de blocage (36, 38, 40), lors de l'actionnement dudit moyen de libération.

9. Agencement d'aiguille intraveineuse (10) rétractable selon la revendication 1 à 8, caractérisé en ce que ladite butée (34) est un bossage.

10. Agencement d'aiguille intraveineuse (10) rétractable selon l'une quelconque des revendications précédentes, caractérisé en ce que, lorsque les ailettes (18) sont pliées, ladite configuration de section transversale du passage (32) est déformée.

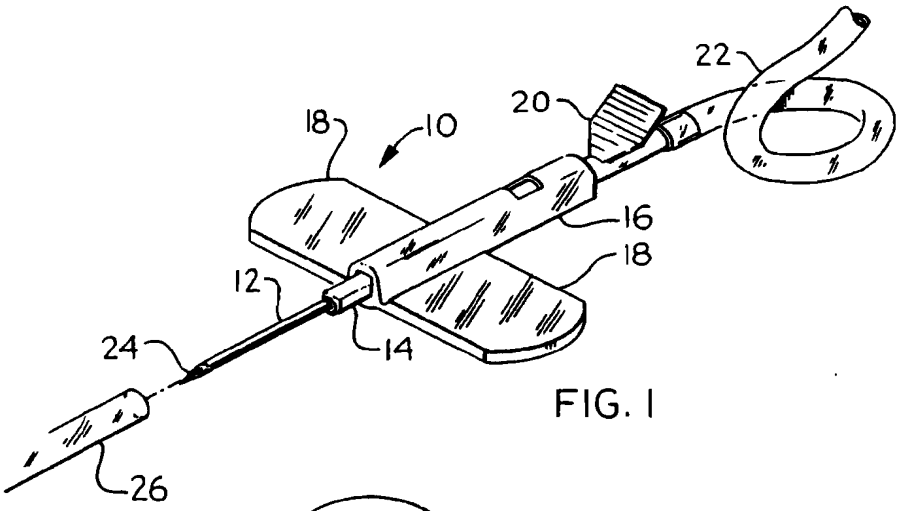

FIG. 1

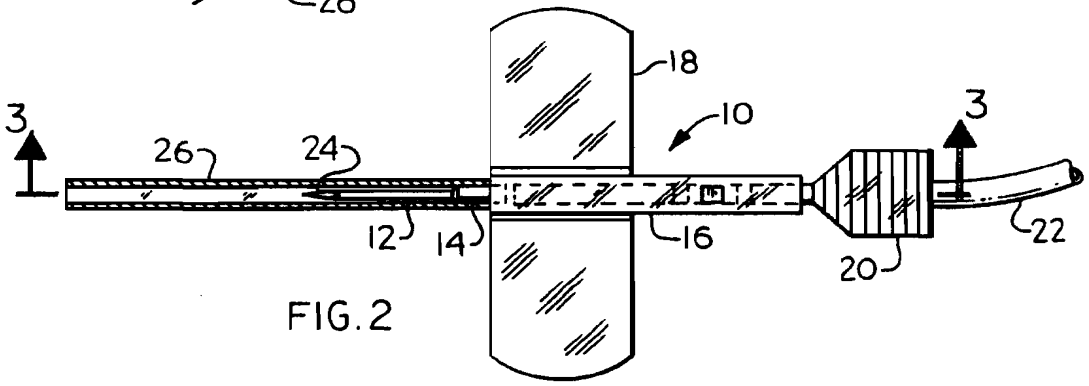

FIG. 2

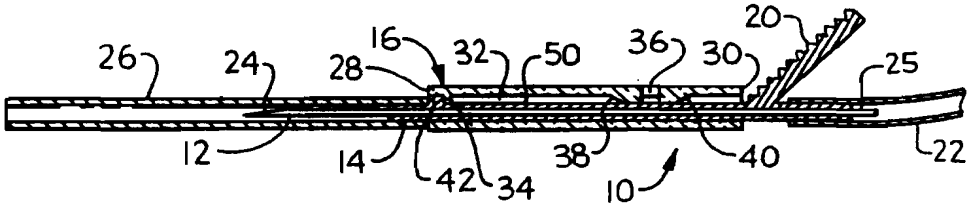

FIG. 3

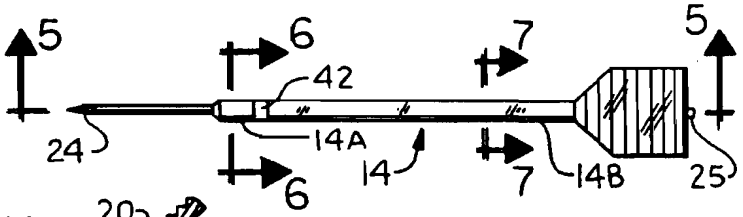

FIG. 4

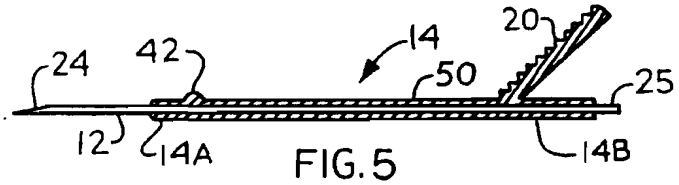

FIG. 5

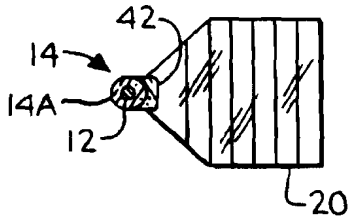

FIG. 6

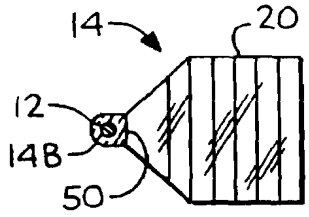

FIG. 7

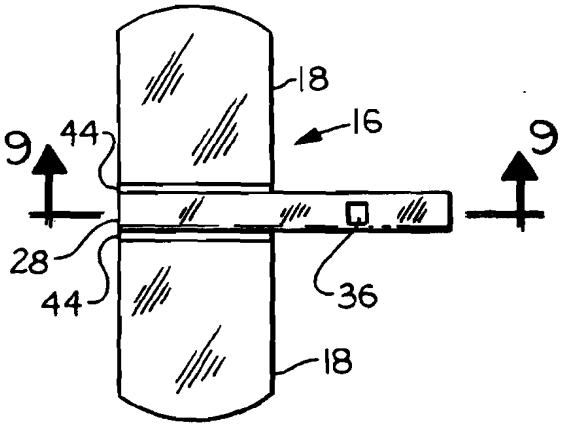

FIG. 8

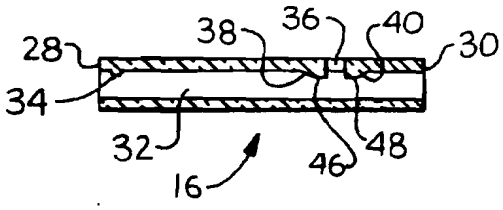

FIG. 9

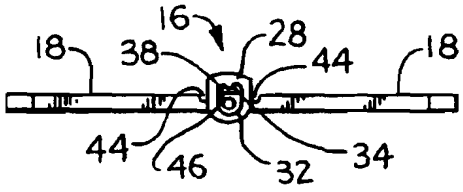

FIG.10

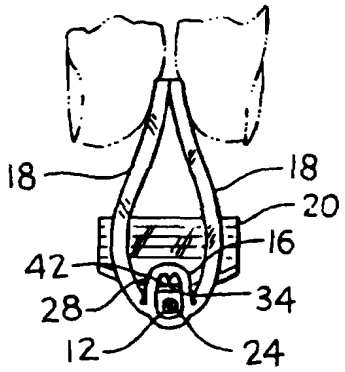

FIG.11

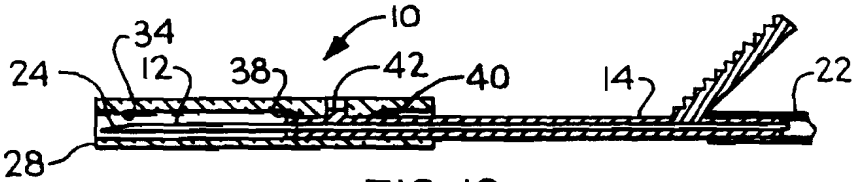

FIG. 12